CLAIMS

1. An optical display system for displaying a projected image, comprising:

a projector that projects an image beam that forms the projected image; and

a prismatic optical panel optically aligned with said projector, wherein said panel receives said image beam, turns said image beam, and displays said turned image beam.

2. A display system according to claim 1 wherein said panel includes a prismatic first side optically aligned with said projector for receiving said image beam at an acute angle of incidence thereto, wherein said panel is effective for reflecting said image beam, and wherein said panel displays said reflected image beam from an opposite second side thereof.

3. A display system according to claim 2 wherein the projector comprises imaging optics that image said image beam across said panel first side, wherein said imaging optics laterally and transversely scale said image beam.

4. A display system according to claim 2 wherein said panel first side includes a multitude of parallel elongated prisms.

5. A display system according to claim 3 wherein said panel first side includes a multitude of parallel elongated prisms.

6. A display system according to claim 5 wherein said imaging optics are aligned with said panel first side for projecting said image beam transversely across said prisms for being transversely expanded at said panel second side.

7. A display system according to claim 2 further comprising a diffuser at said panel second side.

8. A display system according to claim 4 wherein said panel has a width and a height, and wherein said prisms extend in length laterally across said panel width, and are spaced transversely across said panel height.

9. A display system according to claim 4 wherein each of said prisms includes a first facet for channeling said image beam therethrough, and an opposite second facet adjoining said first facet for reflecting said image beam toward said panel second side.

10. A display system according to claim 9 wherein said second facets are transparent for effecting total internal reflection of said image beam inside said prisms.

11. A display system according to claim 9 wherein said second facets include a mirror coating for effecting specular reflection of said image beam inside said prisms.

12. A display system according to claim 9 wherein each of said prisms is elongated and triangular, with said first and second facets defining opposite sides thereof intersecting at an apex having an included apex angle therebetween.

13. A display system according to claim 9 wherein said first and second facets of adjoining prisms define a groove therebetween.

14. A display system according to claim 2 further comprising a light control

layer at said panel second side.

15. A display system according to claim 14 wherein said light control layer comprises microlouvers which direct the projected image to a desired location.

16. A display system according to claim 15 wherein said microlouvers are dark in color such that ambient light is absorbed thereby enhancing contrast of said projected image.

17. A display system according to claim 15 wherein said microlouvers are encased in a thin film comprised of plastic or glass.

18. A display system according to claim 2 wherein said panel inludes a tint comprising dark dye molecules or dark particulates.

19. A display system according to claim 2 further comprising a tint layer at said panel second side, wherein said tint layer includes a tint comprising dark dye molecules or dark particulates.

20. A display system according to claim 7 wherein said diffuser includes a tint comprising dark dye molecules or dark particulates.

21. A method of displaying a projected image, said method comprising the steps of:

projecting an image beam with a projector, said image beam forming the projected image; and

receiving, turning, and displaying said image beam with a prismatic optical panel, wherein said prismatic optical panel is optically aligned with said projector.

22. A method according to claim 21 wherein said panel includes a prismatic first side optically aligned with said projector, wherein said step of receiving said image beam occurs at an acute angle of incidence to the panel first side, and wherein said step of displaying said image beam occurs at a panel second side which is opposite to the panel first side.

23. A method according to claim 22 wherein the step of projecting comprises imaging said image beam across said panel first side with imaging optics, wherein said imaging optics laterally and transversely scale said image beam.

24. A method according to claim 22 wherein said panel first side includes a multitude of parallel elongated prisms.

25. A method according to claim 23 wherein said panel first side includes a multitude of parallel elongated prisms.

26. A method according to claim 25 wherein the step of projecting further comprises projecting said image beam transversely across said prisms for transverse expansion of said image beam at said panel second side, wherein said step of projecting is performed with said imaging optics which are aligned with said panel first side.

27. A method according to claim 22 further comprising the step of diffusing the projected image with a diffuser at said panel second side.

28. A method according to claim 24 wherein said panel has a width and a height, and wherein said prisms extend in length laterally across said panel width, and are spaced transversely across said panel height.

29. A method according to claim 24 further comprising the steps of:

channeling said image beam through first facets of said prisms; and

reflecting said image beam toward said panel second side, wherein said step of reflecting occurs at second facets which are opposite to said first facets, and wherein each of said second facets adjoin a corresponding first facet.

30. A method according to claim 29 wherein said second facets are transparent for effecting total internal reflection of said image beam inside said prisms.

31. A method according to claim 29 wherein said second facets include a mirror coating for effecting specular reflection of said image beam inside said prisms.

32. A method according to claim 29 wherein each of said prisms is elongated and triangular, with said first and second facets defining opposite sides thereof intersecting at an apex having an included apex angle therebetween.

33. A method according to claim 29 wherein said first and second facets of adjoining prisms define a groove therebetween.

34. A method according to claim 22 further comprising the step of directing the projected image to a desired location with a light control layer at said panel second side.

35. A method according to claim 34 wherein said light control layer comprises microlouvers.

36. A method according to claim 35 wherein said microlouvers are dark in color such that ambient light is absorbed thereby enhancing contrast of said projected image.

37. A method according to claim 35 wherein said microlouvers are encased in a thin film comprised of plastic or glass.

38. A display system according to claim 22 wherein said panel inludes a tint comprising dark dye molecules or dark particulates.

39. A display system according to claim 22 wherein said panel includes a tint layer at said panel second side, and wherein said tint layer includes a tint comprising dark dye molecules or dark particulates.

40. A display system according to claim 27 wherein said diffuser includes a tint comprising dark dye molecules or dark particulates.